



ALEX LI

The MIT Spinning Arts Club performs the final act of their North Court Winter Show Feb. 6.

BC scheduled to be closed for ‘renewal’ starting June 2020

Students must move out during construction, dorm expected to reopen under Tier 1 pricing Aug. 2022

By Jessica Shi
EDITOR IN CHIEF

Burton Conner will be the next MIT residence hall to undergo “renewal,” according to an email from administrators and house leaders sent to BC residents Wednesday night. To accommodate the process, BC is scheduled to “go offline” after Commencement 2020, the email said. The targeted completion and reopening date is August 2022.

For BC and all future residence halls that undergo renewal, all students must move out during construction, and the halls will reopen under Tier 1 pricing, according to an FAQ document linked in the email. (BC is currently Tier 2, which is \$335 cheaper per semester for a double.) The renewal will primarily involve an “extensive infrastructure and building systems update,” including “modest updates to finishes and spaces,” the FAQ said. Building

codes may dictate that some spaces need to be reconfigured for accessibility, which may in turn necessitate “some space redesign,” but it is too early to know. There is currently a plan to allow BC residents to move out in groups of up to eight, so that they can stay in the same residence hall, but not necessarily the same floor, the FAQ continued. BC residents will also

Burton Conner, Page 2

EECS releases new, more flexible comp. sci. minor requirements

While old requirements would still fulfill the CS minor, new requirements include more options for courses and electives

By Whitney Zhang
NEWS EDITOR

The MIT Department of Electrical Engineering and Computer Science released its new CS minor requirements Jan. 31 on the CS Minor Piazza page. The requirements will be in effect starting from fall 2019. The new requirements increase the flexibility of the major with more class choices in broader areas. The new requirements are a superset of the old requirements; completion of the old requirements would also fulfill the new requirements. The new minor requires a total of 72 units, with up to 12 units of introductory level subjects, up to 63 units of basic level subjects, and at least 12 units of advanced level subjects.

Additionally, students must take at least one software-intensive subject and one algorithms-intensive subject. There are five options for introductory level subjects, 11 options for basic level subjects, and 28 options for advanced level subjects, with multiple counting as software and algorithms-intensives. In contrast, the old minor required a strict four class core and two additional courses in the basic and advanced electives list, which had three and eight class options, respectively. Additionally, the new requirements include interdisciplinary course options, such as 6.809[J] (Interactive Music Systems) and 6.047 (Computational Biology: Genomes, Networks, Evolution).

Substitutions are not planned to be allowed, but student feedback is welcomed, according to EECS Undergraduate Officer Katrina LaCurts PhD '14 in an email to *The Tech*. LaCurts said that the changes resulted from student and faculty feedback on the original minor suggesting that it was “more restrictive than it needed to be to provide a substantial credential.” The changes were developed in the past year with contributions from “a variety of faculty in leadership roles in EECS ... with substantial input from students.” “Feedback has been largely positive so far, with more students interested in pursuing the minor,” according to La Curts.

Faculty panel discusses dorm move-in, room assignment processes

Panel members agree squatting can work, express mixed views on mutual selection

By Rujul Gandhi
STAFF REPORTER

A faculty panel convened Feb. 7 to discuss the room assignment and move-in process design exercise that residence halls have been asked to participate in. The exercise involves suggesting a process that removes upper-level students' say in first-year room assignment (“mutual selection”) and allows first years to retain their initially assigned rooms (“squatting”). The panel consisted of Professors Ray Reagans, Parag Pathak, John Essigmann PhD '76, and John Fernandez '85. It was moderated by Susan Silbey, chair of the faculty. Panelists answered student questions based on their experiences with residence halls and interaction with undergraduates within their dorms as well as their areas of expertise, such as economics and sociology. Students from multiple residence halls asked questions about topics such as community, fairness in the rooming process, and the relationship between mutual selection and homogeneity. Some students spoke to the panel about the rooming processes in their dorms. The panel seemed to be at a consensus that squatting could be incorporated into the room assignment system. Fernandez, who is part of the Department of Architecture and head of Baker House, defined squatting as “the ability to stay in your room with your roommates,” clarifying that this did not apply to a subset of roommates. In the context of Baker House, which allows squatting, Fernandez said, “We feel, entirely on principle, that if you have a group of residents who want to stay together in a room, that should be allowed.”

Fernandez also acknowledged that Baker is “on one end of the spectrum” when it comes to hall culture. Baker doesn't have “very strong and long-standing cultures,” he said. Although there is interest in forming “sub-groups” on floors, Fernandez thinks that this will not be “fundamentally compromised by allowing squatting.” In response to student questions about how squatting could be implemented, an algorithm was proposed by Pathak, a professor of microeconomics. First, people are put in a priority order. If Person A wants the room belonging to Person B, B is put higher in the order. B then has the option to look for a room they would like better than their current room. If A and B's preferred rooms are being squatted by their respective occupants, B can also squat their room and A will look for a different room. According to Pathak, this algorithm addresses the problem of people not participating in the rooming process because they are afraid of losing their squatting rights. “We know there are some students who stay put because it's the easy thing to do,” said Essigmann, head of Simmons Hall and former head of New House. “What we need to do as a community is to find ways to get people to want to get out and explore.” He also brought up difficulties in moving from one dorm to another and said that these barriers should be lowered. “I think there is very little that I see that the motivation for squatting is inconvenience,” added Fernandez. He said that it was more common, in his experience at Baker, for people to feel a sense of home with their assigned rooms and roommates.

Panel, Page 2

IN SHORT

2021 Ring Premiere is 7 p.m. Friday in Kresge Auditorium.

UROP Direct Funding applications are due today.

No class on Monday due to **President's Day**, an Institute holiday.

Classes next Tuesday will follow a **Monday schedule**.

Apply to be an **associate advisor** by March 1.

The last day to **add half-term subjects** for the first half of the semester is this Friday.

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Send news and tips to news@tech.mit.edu.

MIT COOP to relocate to a smaller location

COOP building set to be demolished and replaced with commercial building

By Kaitlyn Hennacy
ASSOCIATE NEWS EDITOR

The MIT COOP will close its Kendall Square location Feb. 25 and relocate to a temporary location at 80 Broadway. The building it currently occupies at 325 Main Street will be demolished and replaced with a new commercial building. The COOP will have to occupy a smaller space at its new location, but will offer the same textbooks, supplies, and insignia, Jeremiah P. Murphy, Jr., president of the Harvard Cooperative Society, wrote in an email to *The Tech*. There will be a reduction in non-academic

goods; the COOP is also considering shifting course textbook purchases to an online platform. A plan approved in December 2018 provides the framework of the development scope for the new building, Tom Evans, executive director of the Cambridge Redevelopment Authority, wrote in an email to *The Tech*. However, the specific building design is pending approval, with its design review scheduled for this month. The cover sheet of the proposed design, found on the Cambridge Redevelopment Authority website, targets demolition to be

COOP, Page 2

COMPUTERIZED COMPLIMENTS?
Auntie Matter is back just in time for Valentine's Day.
CAMPUS LIFE, p. 9

AGAINST THE COLLEGE
MIT's actions show that ethics won't be central to the new college. **OPN, p. 5**

DEATH OF MUTUAL SELECTION
The repercussions of changing room assignment. **OPN, p. 6**



FROM NYC TO CAMBRIDGE
We tried the Milk Bar's greatest hits.
ARTS, p. 8

INTERSECTION OF ART AND TECHNOLOGY
Creating art with bacteria.
ARTS, p. 7

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WEATHER

This Valentine’s Day, fall in love with the weather

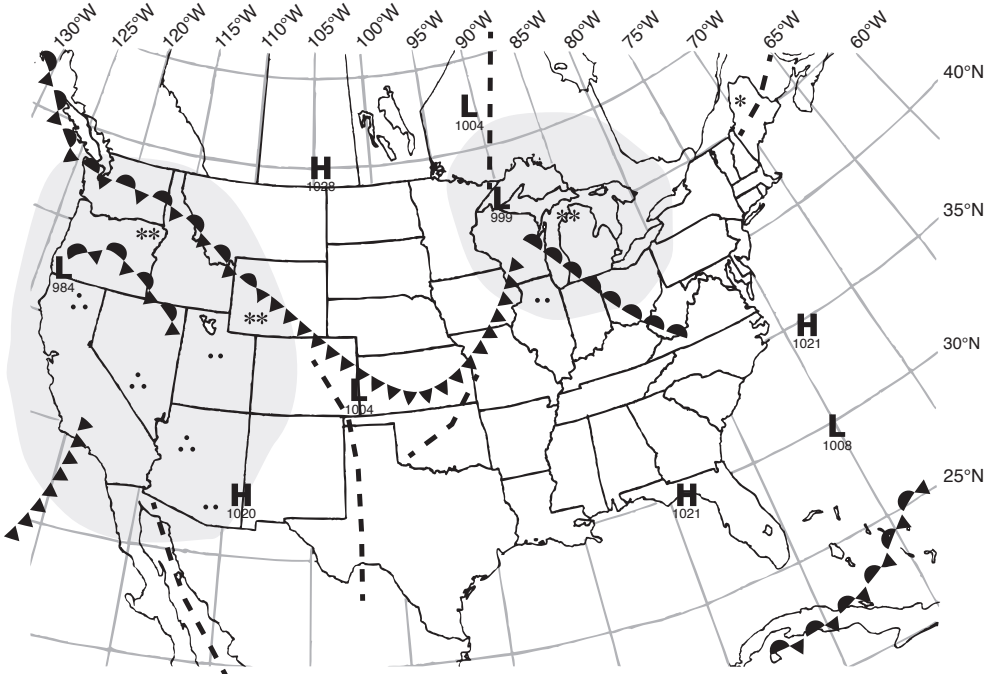
By Jordan Benjamin
STAFF METEOROLOGIST

Boston doubled its snowfall total for the season this past Tuesday, as a brief snowstorm brought the city’s snowfall total to 4.7 in (12 cm), the third lowest seasonal total to date on record. Today, however, we can fall in love with fantastic Valentine’s Day weather featuring cool temperatures and sunny skies, perfect for date plans or other activities! For Friday, the region faces another brush with some light precipitation, and

through the weekend we’ll enjoy continued seasonable, variable temperatures. Still, nothing major or of the magnitude we saw at the beginning of the week is expected soon. Further abroad, the west coast continues to wade through a barrage of precipitation as deep moisture streams inland from the Pacific. This round of heavy rain and high elevation snow is on top of extended heavy precipitation which has brought crippling snowfall to places like Seattle and raised California reservoirs to near or above full pool.

Extended Forecast

Today: Sunny. High around 38 °F (3 °C). Winds west at 10-20 mph.
Tonight: Partly cloudy. Low 31 °F (-1 °C). Winds southwest at 5–10 mph.
Tomorrow: Chance showers. High around 52 °F (11 °C). Low around 32 °F (0 °C). Winds southeast at 5–10 mph.
Saturday: Mostly sunny. High around 40 °F (4 °C). Low around 22° F (-6 °C).
Sunday: Mostly sunny. High around 36 °F (2 °C).



Situation for Noon Eastern Time, Thursday, February 7, 2019

Weather Systems	Weather Fronts	Precipitation Symbols	Other Symbols
H High Pressure	- - - Trough	Snow: * (light), ** (moderate), *** (heavy)	☁ Fog
L Low Pressure	—▲— Warm Front	Rain: • (light), •• (moderate), ••• (heavy)	⚡ Thunderstorm
§ Hurricane	—▲▲— Cold Front		∞ Haze
	—▲▲— Stationary Front		

Compiled by MIT Meteorology Staff and The Tech

IAP course Designing the First Year generates new ideas
Vice Chancellor Waitz: a theme for the class was to think ‘blue-sky’

By Soomin Chun
NEWS EDITOR

Nine students participated in the two week 2019 IAP course “Designing the First Year Experience: Fun-Sized” sponsored by the Office of the Vice Chancellor (OVC). The course was a continuation of the spring 2018 course “Designing the First Year at MIT,” with the same underlying concept of using design principles to create ideas for improving the first year. The course resulted in around 40 ideas that the OVC will now be sifting through. The students in the class, who ranged from first years to graduate students, split into four teams and met every day for three to five hours to develop action plans that they showcased in a final presentation,

according to Vice Chancellor Ian Waitz in an interview with *The Tech*. All groups supported their action plans by drawing on what literature shows are “high impact practices in education,” which lead to more engaged and successful students. One team created a Garden of Ideas exploratorium in combination with an “MIT4U” application to facilitate awareness and exploration of majors earlier on. At the exploratorium, students would be exposed to a large breadth of projects and demonstrations, be able to look them up in the MIT4U App, and be shown relevant courses and majors to help them reach a finished product. Dipo Doherty G explained the basis of the exploratorium, saying in a video-recorded presentation forwarded to *The Tech*, “This is tak-

ing a very granular approach. We’re going to work from the end product and get the students to understand what concepts that actually go into this product. And last but not least, curiosity, because that’s what drives passion, and passion drives innovation in our students.” Another team’s project, GIR Up, would “redefine and restructure the first-year GIR experience” by replacing final exams with a “culminating and interdisciplinary project.” One example of an interdisciplinary project Janice Tjan ’22 gave during her team’s presentation was combining the concepts of analyzing shapes in vector spaces from 18.02 and Newton’s second law from 8.01 to “create virtual roller coasters” using MATLAB. Other ideas included REFLEX, which would introduce 3-unit quar-

ter-long major exploration classes and a new first-year learning community that would be an incubator for educational excellence. The original spring course was a 12-unit HASS-E and design minor credit class that focused on exploring changes that could improve the first-year experience. It culminated in small policy adjustments for a large number of students, such as the new first year experimental grading policy that allows the Class of 2022 to designate up to three General Institute Requirements as Pass/No Record after their first term. The students taking the IAP course benefited from being able to access six months worth of data collection and stakeholder interviews from the spring, Waitz said. In contrast to the spring course, the

IAP course focus shifted to more radical changes for a smaller group of students, honing in on implementing changes within learning communities. “We felt that a good theme for this class was to think ‘blue-sky’ and about inspiring a love of learning, so we sort of gave them encouragement in that direction. We also told them — not in a restrictive way — to think about ideas you could test with a small group of students, and we think that will be important in moving ahead with anything that’s a more significant departure from the current system,” Waitz said. According to Waitz, some ideas could be tested in existing learning communities as early as next fall, whereas introducing a novel learning community entirely would take at least another year.

BC residents may be able to move in groups

Burton Conner, from Page 1

have priority in the housing lottery, and “eligible students” living in BC in spring 2020 who move off campus are guaranteed housing in BC when it reopens. New House was fully reopened last fall after undergoing a staggered schedule of renovations. It is the first non-dining dorm to be part of the Tier 1 category. Before renovation, the dorm had suffered several pipe bursts, which caused flooding and resulted in some residents staying in the Hyatt Regency hotel for a semester, costing the Institute \$6 million for repairs and living expenses. “MIT has developed a capital planning framework ‘MIT 2030’ to guide the renovation and renewal of academic, residential, and student life spaces across

the campus,” the email to BC residents said. Campus planners have been reviewing “how best to sequence the renewal of Burton Conner and East Campus,” the email continued, although the FAQ noted that decisions about which dorm to renew next have not been made yet. The email was sent by Vice President and Dean for Student Life Suzy Nelson, Senior Associate Dean of Housing and Residential Services David Friedrich, and BC Heads of House Janelle Knox-Hayes and Jarrod Hayles. A new dorm is set to open on Vassar Street in fall 2020, but it is not intended to serve as a “swing dorm” for displaced students in dorms undergoing renewal, the FAQ emphasized, as that would interfere with the development of the new dorm’s identity and culture.

Silbey: ‘we don’t mutually select each other all the time’

Panel, from Page 1

The panel seemed to be more divided on the topic of mutual selection. Essigmann, speaking about his experience in New House, acknowledged both the benefit of mutual selection and that about three to four students each year would be unhappy due to their rooming assignment. New House has nine houses that mutually select their residents. “Most students felt embraced by a wonderful loving family of people who were like them. So it was good for almost everybody, but some peo-

ple were intensely distressed,” Essigmann said. One student from Burton Conner was concerned that squatting first years might not necessarily be interested in participating in floor culture. Silbey responded that people work at what they have to do together, regardless of who they are working with. She remarked, “For most of human history and even in the contemporary world,” people did not participate simply because they’ve chosen their fellow participants. “We don’t mutually select each other all the time,” Silbey said. She gave the example of arranged mar-

riages working out, to the confusion of the audience. Reagans, a Sloan professor of organization studies, said that while he “couldn’t imagine what it would feel like” to be turned down by a community, mutual selection is working for some residence halls. “The objective was to find alternative ways to realize the benefits that mutual selection is creating,” he said. “So it wasn’t necessarily removing something, but trying to figure out ... what exactly are the benefits that it’s creating, and if we know what they are, are there other ways?”

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COOP to reopen Mar. 4

COOP, from Page 1

gin this May and completion of the new building for early 2022. Boston Properties is the developer in charge of this site.

The bottom two floors of the proposed building design have been designated for retail stores, restaurants, and a public lobby that connects Kendall Plaza to the Kendall Rooftop Garden. The other 14 floors of the over-244-foot building are planned to be used as office space. As part of the project, a new head house for the Kendall Square outbound T station has been proposed and is pending MBTA approval.

According to a government affairs update sent by the Cambridge Chamber of Commerce in December 2018, Google is likely to be the anchor tenant of the new building. The building will connect to Google's current office at 355 Main St.

The preliminary building design received scrutiny for blocking view of other buildings and light. Revised plans published to the CRA website in January removed bulk from the building, expanding the gap separating it from other build-

ings. Furthermore, floor-to-ceiling height was reduced, allowing for an additional floor, increasing floor space.

However, according to a study included in the design document, the shadow of the proposed building would still cover up to 90 percent of the rooftop garden behind it, depending on the season and time of day.

Discussion regarding plans for a new building began 2011 during the City of Cambridge's K2 Planning process, Evans wrote. According to Evans, motivations for the new building include "allowing space for the innovation economy to grow in Kendall, building a more mixed use neighborhood, expanding public amenities, and pursuing sustainable development."

Murphy wrote that the COOP has the option of returning to the newly built commercial building at 325 Main St. when it is complete. The COOP had worked with the site developer, Boston Properties, for several months to agree on the relocation.

In the meantime, the COOP is expected to reopen at its temporary 80 Broadway location on March 4.



KEVIN LY—THE TECH

The MIT COOP is relocating to a temporary, smaller location at 80 Broadway, set to open March 4.

Solution to Wedding														
from page 10														
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from page 10														
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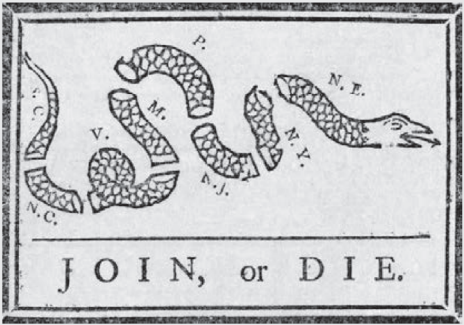
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Nathan Liang '21

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Celebrating war criminals at MIT's 'ethical' College of Computing

OPINION POLICY

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Shunned by Harvard, feted by MIT

By Husayn Karimi and Arif Hussain

In his almost five-decade-long political career, Swamy has mostly associated with center-right to far-right political parties.

In his almost five-decade-long political career, Swamy has mostly associated with center-right to far-right political parties. He started out with the Brahmin nationalist party

In an interview, Swamy said that “being homosexual” is “not normal,” is “against Hindutva,” and needs “medical research to see if it can be cured.”

On July 16, 2011, in an op-ed in Indian newspaper *Daily News and Analysis* titled “How to wipe out Islamic terror,” Swamy proposed, among other things, to “[r]emove the masjid [mosque] in Kashi Vishwanath temple complex, and 300 others in other sites as a tit-for-tat,” and to “declare India as Hindu Rashtra in which only those non-Hindus can vote if they proudly acknowledge that their ancestors are Hindus.” The op-ed was criticized by readers but was also praised within the Brahmin Supremacist ecosystem of Rashtriya Swayamsevak Sangh (RSS), the parent organization of BJP. The Harvard Division of Continuing Education, which runs the Harvard Summer School program at which Swamy taught, initially supported Swamy in the name of free speech and resisted the calls to censure him. Neoconservatives in the U.S. were delighted and Fox News did an interview with Swamy, in which the interviewer Steve Doocy said, “Your op-ed was absolutely right. People have got to stand-up to Islamic terror.” Swamy also com-

In 2016, following the suicide of Rohith Vemula, a bright Dalit — a social group kept outside the Brahminical social caste system's hierarchy and thus historically suppressed — PhD candidate, large scale protests by members of oppressed castes broke out all over India and abroad. Swamy called these protesters “dogs” in a tweet from his official Twitter handle.

Later in December, Harvard faculty voted to discontinue Swamy's summer school courses, effectively shutting him out of Harvard.

In recent times, Swamy has been in the news for speaking out against the decriminalization of sex between consenting adults of the same gender, insisting that homosexuality is "not a normal thing." Swamy said, "These are all American habits, there's a lot of money behind it. The Americans want to open gay

It is interesting to see the return of Swamy to the north banks of the Charles River, this time to MIT. There is already a petition on Change.org imploring President Reif to disinvite Swamy from the conference, and earlier this week, a group of MIT faculty members wrote to President Reif and Provost Schmidt expressing their opposition to the India conference's invitation to Swamy. So far the people behind Swamy's invitation, notably Prof. S.P. Kothari — also the Chairman of last year's World Hindu Congress in Chicago, an RSS jamboree — are silent on the ongoing protest. Coming at the heels of MIT's recent refusal to dissociate from Mohammad bin Salman and Saudi investment, whether this invitation signifies the MIT administration's conscious tip towards a more conservative, even reactionary worldview, or is just an attempt by vested interests to establish currency for a particular political viewpoint, will be judged by the final decision on the matter by MIT leadership.

Editor's note: this article was published online Feb. 9.

Chancellor and provost respond to column on MIT India Conference

Each year, the MIT India Conference is organized and run by MIT graduate students, with the guidance of faculty and staff advisors. When it takes place this year on Feb. 16, Dr. Subramanian Swamy is scheduled to

Faculty advisor responds to column on MIT India Conference

The opinion column published in *The Tech*, "Shunned by Harvard, feted by MIT", describes the controversy surrounding Dr. Subramanian Swamy, a member of India's ruling party who will join the conference by video. The writers detail a number of statements Dr. Swamy has made and sug-

This is a moment when two of our most deeply held values — freedom of expression and inclusion — are in conflict. For MIT as a university, guarding freedom of expression is fundamental to our mission of advancing knowledge and educating students. We are and must be committed to ensuring that different points of view — even those we reject — can be heard and debated in a respectful

First, the conference organizers and faculty advisors have an unequivocal and unwavering commitment to MIT's values. Among those values is inclusion, of course, but also freedom of expression and a willingness to listen to those whose views may differ from our own. Dr. Swamy will speak about India's economic future, a topic I believe is appropriate for the MIT India Conference. The student organizers have programmed the event to include a diversity of opinions. It's important to note that inclusion does not equate to endorsement — by the organizers, the advisors, or the Institute. My role as an advisor and educator is to position our students to engage with, not isolate themselves from, those with different — sometimes even abhorrent — views. Therefore, I think it is important that we find opportunities to hear from those

In this instance, our students have chosen to allow Dr. Swamy to speak. We support their right to do so, and we expect to maintain our community's standards of open, respectful dialogue.

Sincerely,
Chancellor Cynthia Barnhart
Provost Martin Schmidt

While the student organizers are divided on this particular issue, I am grateful for their dedication to this important conference. And I am grateful for their willingness to work together despite their differences of opinion.

Sincerely,
S.P. Kothari

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ARTIST FEATURE

Human-scented perfume, bacteria-painted sculptures, mind-controlled sperm

Research-based artist and MIT graduate Ani Liu redefines contemporary art

By Alana Chandler
STAFF WRITER

Art is a visceral form of storytelling that has existed throughout human history. It captures the human experience across generations, cultures, and places. Time melts the raw, rock-etched pictographs and fruit-dyed pigments stroked on cave walls into the sinewy marble sculptures of the Romans and natural landscapes of Asian woodblock prints. Time flows, transforming art along with it, swirling in a current of emerging technologies of each age: from the simple wheel enabling the sculptor to move large stones to chemical processes blooming vibrant dyes to digital photography capturing scenes with pixel instead of paint. The powerful influence that evolving technologies have on artistic expression, or perhaps art itself — the innate messages and techniques — propels the growth of human civilization. Technology shapes our thinking and self-expression. As the 21st century rapidly brings us closer to a world woven with the synthetic threads of artificial intelligence and automation, how will art react?

As the 21st century rapidly brings us closer to a world woven with the synthetic threads of artificial intelligence and automation, how will art react?

This is one of many questions that fuel research-based artist Ani Liu SM '17 in her transdisciplinary work. Her pieces encompass the intersection of aesthetics, science, design, and technology. In one project, Liu took an alternative perspective on the traditional artistic motif of the human portrait. Instead of painting a figure on a canvas, Liu used silicon, oil, wax, minerals and hair to symbolically dissociate the body into its constituent components as a deconstructed machine: water, fat, protein, and minerals. She also added non-organic elements, such as microcontrollers and diodes, to represent a future where technology is integrated in our bodies. Confronting the viewer with the materiality of life, the piece begs the questions, *What does it mean to be human and alive? How did such rudimentary building blocks create the phenomena of qualia, subjectivity, and sentience?* In another project, Liu created performance art in which female participants could control a magnified plate of sperm with their mind using a headpiece that measured the electrical activity on one's scalp — a compelling feat, both technically and politically. Contextualized in an era of “locker room talk,” contraceptive regulation, and age-old sexual abuse, this subversive counternarrative pushes viewers to reflect on what agency, or the lack thereof, a woman has in controlling her body. From virtual reality to MRIs to microbiomes, Liu leverages the technologies around us as media to redefine this era's version of contemporary art.

Growing up in Chinatown as the child of immigrants, she was pushed towards science and math in what she describes as “a very typical Asian American fashion.” However, she always dreamed of becoming an artist. “Finding a way to make art with the tools of science and technology was my way of integrating both the pressure I felt from my culture and my family, and then also pursuing my passion,” Liu said. In integrating technology with art, Liu felt that she “finally found a way to voice the questions [she] wanted to ask.”

Despite this intense passion, Liu had reservations about becoming an artist in a society that most values commercial products, materiality, and corporations. When discussing this doubt with her mentor at university, he suggested Liu think about political revolutions: "You know what the regimes always stifle first? They kill the artists first!"

Liu can pinpoint the project that launched her journey into the amalgam

of art, philosophy, and science. While she was an architecture master's student at Harvard, one of her design professors, Dr. Krzysztof Wodiczko, mentioned in class the idea of "cultural prosthetics" — wearable technologies, like Google Glass and bodily implants, that reflect the ideas, customs, and social behaviors of society. These technologies are designed to be additions or interventions that eventually "become" part of you and your identity, blurring the boundary between human and machine. Outside of class, Liu read Sherry Trickle's *Alone Together*, which discusses the idea that, even though technologies connect society more than ever with global networks that run 24/7, many people actually feel more isolated. That concept resonated with Liu, recalling times at parties when, instead of talking with those around her, she would ease her social anxiety by looking at her phone. Liu began to wonder, "Can I build something that would force me to interact with people?"

Her first piece was inspired by these questions. It was a helmet that prevented her from seeing anyone unless they stepped up and held her hand. On her hand was a capacitive touch sensor that was connected to the helmet by a wire running up her arm. That sensor, in turn, triggered a gear that caused an iris in the helmet to open and close like the aperture to a camera. During this project, she also learned how to use an arduino and 3D printer; Liu said, "I spent my life learning how to draw and sculpt, and with these tools, I could give [my art] a brain."

In addition to a mind, Liu gives her art smells. She created a string of scent-based works after reading a quote by Caroline Jones, an MIT professor in the architecture department: “Smell is preverbal and has no capacity to pretend.” When looking at something, one interprets the symbols, piecing them together to form meaning. By contrast, Liu believes that “smell goes straight to the core of emotions, clutching your body.”

Her “Snelfie Project” — a title that is a play on the words “smell” and “selfie” — is one in which she captures the scent of loved ones to create a “human perfume.” As unique as the project is in and of itself, Liu’s path to the project is just as intriguing. Learning about biotechnology for the first time, she was looking at what motivated its progress, like genetic engineering in agriculture. She unavoidably arrived at the products of Monsanto, a “Big Agro” company, where she learned that some of the genetic engineering embodied in their seeds has nothing to do with the nutrition or survival of the seeds. Rather, the seeds were designed so that farmers could not plant crops that reproduced themselves, thus forcing farmers to keep buying seeds every season, engineering an organism for the purpose of supreme capitalism. Liu was shaken by such a brazen use of bioengineering, a revolutionary technology, to grow pure profit instead of crops.

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Instead of engineering infertile seeds for patent, Liu wondered how she could harness this technology for artmaking. What type of plant would she create if she could grow anything? Her thoughts meandered over “time capsule plants” which would blossom flowers that smelled like a specific person to preserve their memory. Unfortunately, the barriers of money, time, and scientific manpower prevented her from actually cultivating such an organism. As a byproduct of her research on capturing human scent, she instead developed a method for crafting a perfume that smelled like a particular person — the “Smelfie Project” was born. She put stinky t-shirts from her peers through gas chromatography, measuring molecular weights, to reverse engineer what mole-

cules were in the smells. She also used traditional botanical perfume-making techniques, soaking the smelly garments in solvents to capture the volatile molecules, and then distilled the resulting essence. "This project was very meaningful to me," Liu said, "because in all the ways we as humans try to hold onto ephemeral moments in time, like taking many photographs, this was a different way of recording a moment in time."

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The idea of scent as a time capsule led Liu to consider astronauts — those thrust into an environment of ultimate unfamiliarity. Liu said she feels as though researchers “do so much investigation on jet propulsion, logistics, astrophysics,” yet she was “interested in the emotional qualities of the person who was on this journey.” What would it be like to be on a one-way trip to space? What would happen if we actually destroyed the environmental resources on Earth and could no longer live here? “I was trying to imagine giving birth in space, like raising children there, maybe that child never having smelled the smell of the ocean. How could I again make this kind of memory time capsule where current or future astronauts could connect to Earth?” She was ultimately successful in capturing smells like dirt and the sea by working with the International Flavors and Fragrance Incorporation. As artistically innovative as her idea was, she had to consider many scientific factors before testing her project out in zero gravity. One consideration was that zero gravity redistributes the blood in one’s body, causing more blood to travel to the head, which makes one’s nose stuffy. Therefore, Liu had to make notes of certain smells stronger.

Liu's captivation with the human body extends to the bacteria that inhabit us. As an MIT Media Lab graduate student, Lui attended a microbiology lecture about sterile mice born without microbiomes, who

were later exposed to the microbiomes of an aggressive or anxious mouse. Mice given the microbiomes of the aggressive mouse became aggressive themselves, and the same for mice given the microbiomes of the anxious mouse. Liu said, "This was very pivotal for me because up until then I had understood behavior as nature versus nurture, but the idea that my microbiome could influence my moods and behaviors was so weird — another organism shaping who I am!" She found beauty in this realization as well, in that it removes some of one's ego in knowing that "I'm not just me, but I'm me plus a million other organisms culminating me."

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Liu decided to explore the invisible prevalence of microbiomes through a series of self-portraits. She took a cast of her face and mouth to make a mold and poured in agar and microbial nutrients to make a “petri-dish” sculpture of her face. She then kissed this human-like petri-dish to impart her microbial cultures onto it. After incubating and growing the cultures, she created a visual reflection of her microbiome, ripe with blue fuzz, white puffs, and a plethora of other oddly mesmerizing bacterial patterns.

Through her artistic investigations, Liu has come to the realization that, “at the end of the day, we’re just meat machines that deeply, emotionally, feel.” As rational, logical, and systematic as we make ourselves to be, Liu says that humans will always be drawn to consuming and making art because it captures some core essence of living in us. Liu’s scientific, research-based art is not only entertaining and beautiful, but also educates viewers on how technologies shape what it means to be human, how we interact with each other, and our relationship to ourselves.

Ani Liu's work can be found at the following website: <https://ani-liu.com>



HANG XU

Ani's first project combining art and science, Eyeris is a 'cultural prosthetic' preventing its wearer from seeing unless someone else holds their hand.

ADVICE

For the lonely and lovelorn this Valentine’s Day

Auntie Matter on love that ‘pricks like thorn’

By Auntie Matter

If you have questions for Auntie Matter, please submit them at tinyurl.com/AskAuntieMatter. Questions have been edited for length, clarity, and content.

A wise MIT professor once told Auntie that the hardest part of human life is finding love. With that in mind, Auntie presents Valentine’s Day selections about finding, and navigating, love.

Dear Auntie,
My boyfriend seems incapable of giving me compliments, and I don’t know how to explain that I’d really appreciate the occasional nice thing said about me. The last time I brought this up, he wrote a neural net to generate compliments and then has a cron job send them to me every morning. I’m not sure how to tell him that AI-generated niceties aren’t quite what I’m looking for. Please help.

— Digitally Distressed

Dear Distressed,

There are a few possibilities that could explain your boyfriend’s behavior, all of which warrant a serious reconsideration of your relationship. The first is that your boyfriend is extremely clueless. Seemingly, this is the most innocuous explanation, but while clueless men may appear cute at first, buyer beware. One day your man looks like

a lovable dope; the next, he computerizes his compliments. While you may be able to get through to him, you should think about whether you want to put up with someone who is so lacking in good sense.

Another possibility is that your boyfriend has done this actively to hurt you. The action is so thoughtless that, while Auntie is usually a proponent of the old adage, “never attribute to malice what can be explained by incompetence,” your boyfriend might actually have been ill-intentioned. This is MIT, however, so he’s probably just clueless. Regardless, if you discover your boyfriend is actively trying to hurt you, you should break up with him.

A final option is that you ask for too many compliments, and your boyfriend is exhausted, the neural net being a form of cyber protest. From your question this does not seem to be the case, as you describe yourself as repeatedly (“the last time”) asking for “occasional” compliments. However, you should ask your boyfriend if he feels this way. (Auntie leaves as an exercise for the reader the implications of the fact that Distressed has had to bring this issue up on multiple occasions.)

In any case, you will have to talk to your boyfriend about his motivations, and how his behavior has affected you. You should try both to communicate your feelings and understand his. While Auntie is skeptical, he may be able to explain himself. Your re-

lationship admittedly looks dubious from this letter, but perhaps you will be satisfied with the resolution to this conflict. Auntie wishes you good luck with your dumb boyfriend.

Dear Auntie Matter,
I’m a junior, and I feel really lonely. I’ve gone on a bunch of dates, and I’m on Tinder, but nothing sticks. I never feel the spark with any girls I go out with. When I do really like someone, she is never into me. I want to find a girlfriend, but I’m losing hope. What am I doing wrong? All my friends have or have had girlfriends, and I feel like I’m behind the curve.

— Looking for Love

Dear Looking,

Your letter gives few hints as to the cause of your dating problems, so Auntie will speculate on a range of possible causes and offer some solutions.

You might be emotionally unavailable — either not willing to open up to your dates or hung up on something (another woman, a situation in your past, etc.). You might not have clear or realistic expectations, either for the women you are seeing or the dates themselves. If any of these are the case, you’ll want to do some self-reflection. Think about whether you are being held back by old baggage, or whether you are trying to fit your dates into boxes before you meet them.

You might just be awkward around women. You wouldn’t be the first awkward MIT guy. (Trust Auntie, she knows.) And aside from general awkwardness, you might have poor hygiene, lack of etiquette knowledge, or other problems that make dating difficult.

Auntie has a concrete solution for awkwardness/poor hygiene/lack of etiquette: make friends with more women. There are many benefits — women can help you analyze your dating problems, and they can set you up with other women. Interacting with women will help alleviate any awkwardness you have around them. However, two caveats — first, if you want to date a woman, just ask her out. Do not start a friendship in the hope that she will someday want to date you. Second, you should not intend to use these women: make friends with them because you like them as people and want to be a good friend to them. Then, when you have a genuine friendship, you can ask for help, as friends ought to do.

Lastly, you might simply be unlucky. It’s not always easy to find someone you like who also likes you. In this case and in any case, you must simply keep going. Be brave and patient in your pursuit of love.

If you really want love, Auntie, as always, believes you will find it. Your yearning for love is charming and human and valuable — while it may be painful, cherish it.

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“Hang those who kill cows”

Subramanian Swamy

MIT is providing a platform to Subramanian Swamy an Islamophobic, Homophobic and Racist political operative from India who has made a career out of demonizing and vilifying marginalized communities especially religious and sexual minorities.

THIS AFTER

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Welcome by
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Opening Remarks and Panel
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Kresge Auditorium,
Building W16

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Engineering and Computer
Science at MIT
Butler Lampson, Technical
Fellow, Microsoft Corporation;
Adjunct Professor of Computer
Science at MIT
Barbara Liskov, Institute
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Silvio Micali, Ford Professor
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